## Comparing Circles

Here are two circles. Their **centers** are $A$ and $F$.



1.  What is the same about the two circles? What is different?

2.  What is the length of segment $AD$? How do you know?

3.  On the first circle, what segment is a diameter? How long is it?

4.  On the second circle, draw a new segment that represents the radius. Label any new points you draw with new letters and write the length of the segment next to it.

## Identifying Circumference and Diameter

Select all the pairs that could be reasonable approximations for the diameter and circumference of the same circle. Explain your reasoning.

1.  5 meters and 22 meters.

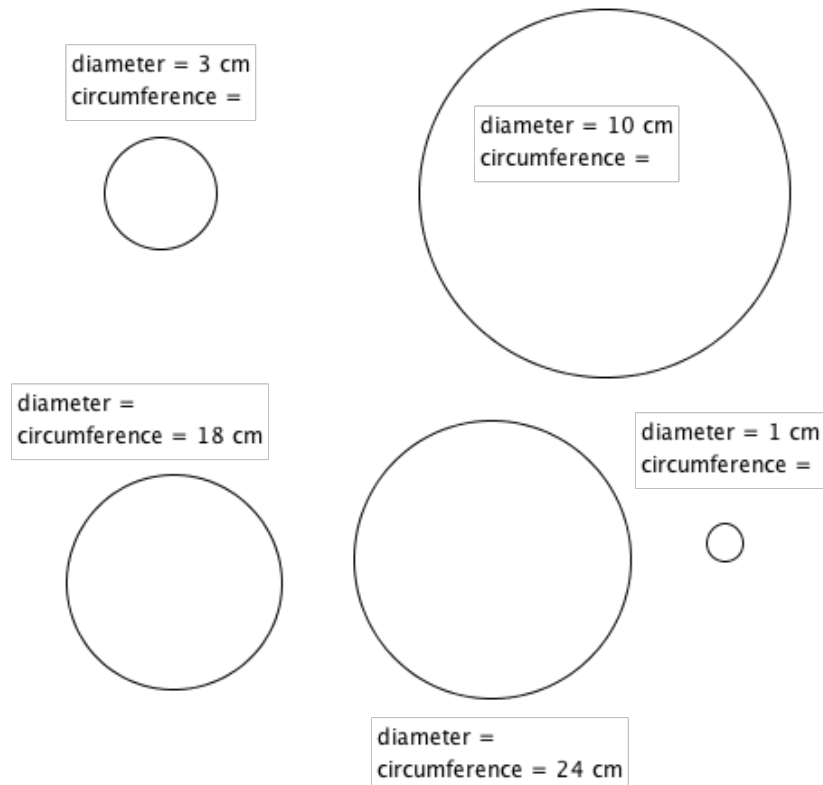2.  19 inches and 60 inches.

3.  31 centimeters and 80 centimeters.

# Activity Statement: Calculating Circumference and Diameter

Here are five circles, each with its diameter or circumference labeled.

diameter = 3 cm
circumference =

diameter = 10 cm
circumference =

diameter =
circumference = 18 cm

diameter = 1 cm
circumference =

diameter =
circumference = 24 cm

Complete the table. Use the constant of proportionality estimated in the previous activity.

| diameter (cm) | circumference (cm) |
| --- | --- |
| 3 | |
| 10 | |
| | 24 |
| | 18 |
| 1 | |

2. Plot the diameter and circumference values from the table on the coordinate plane. What do you notice?
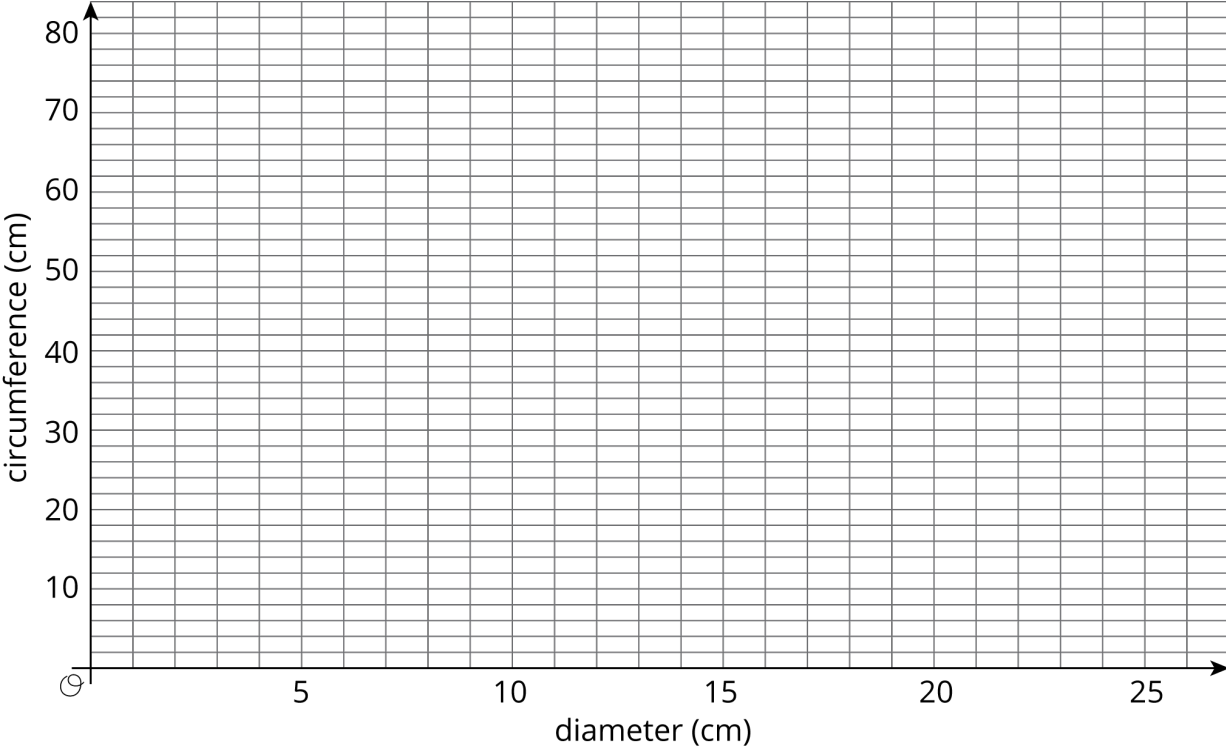
# Lesson 2: Exploring Circumference

1. Diego measured the diameter and circumference of several circular objects and recorded his measurements in the table.
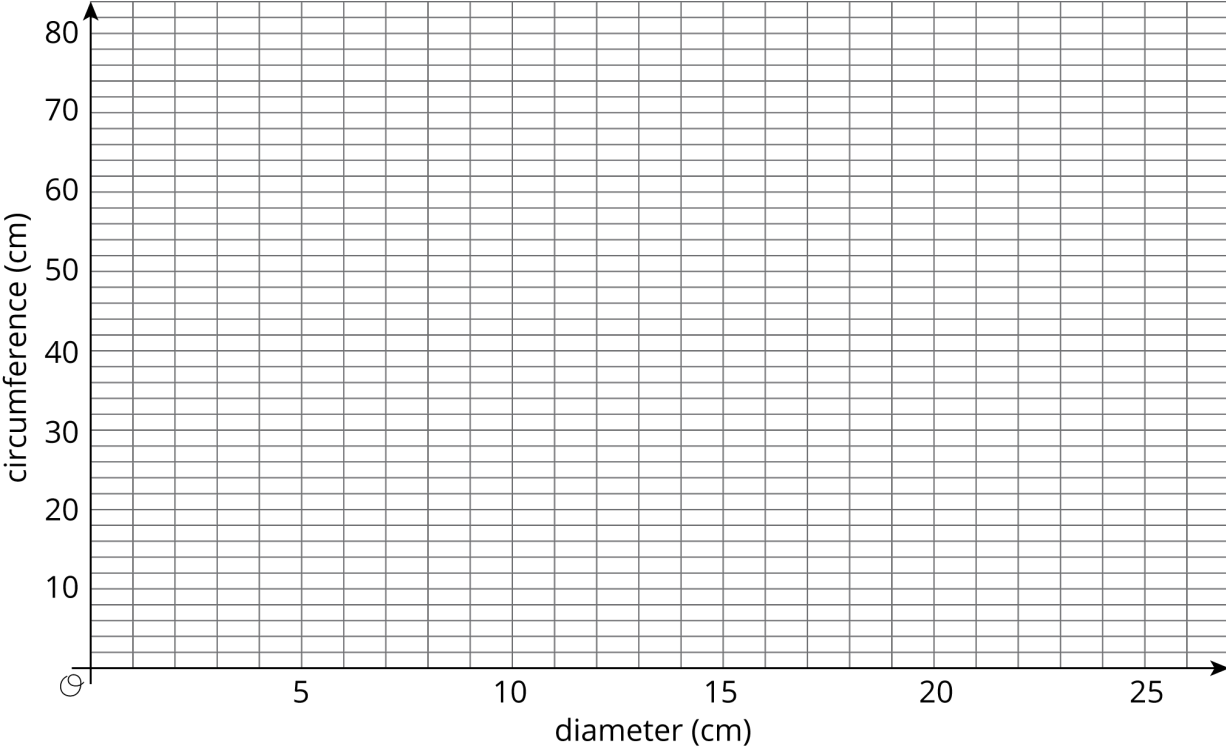
| object | diameter (cm) | circumference (cm) |
|---|---|---|
| half dollar coin | 3 | 10 |
| flying disc | 23 | 28 |
| jar lid | 8 | 25 |
| flower pot | 15 | 48 |

   a. Plot the diameter and circumference values from the table on the coordinate plane.

   b. One of his measurements is very inaccurate. Which measurement is it? Explain how you know.

2. Complete the table. Explain or show your reasoning.

| object | diameter | circumference |
|---|---|---|
| hula hoop | 35 in | |
| circular pond | | 556 ft |
| magnifying glass | 5.2 cm | |
| car tire | | 71.6 in |

2. Plot the diameter and circumference values from the table on the coordinate plane. What do you notice?

## Circumferences of Two Circles

Circle A has diameter 6 cm. Circle B has diameter 5 cm. How much longer is the circumference of Circle A?

# Lesson: Applying Circumference

## Activity Statement: What Do We Know? What Can We Estimate?

Here are some pictures of circular objects, with measurement tools shown. The measurement tool on each picture reads as follows:

- Wagon wheel: 3 feet
- Plane propeller: 24 inches
- Sliced Orange: 20 centimeters
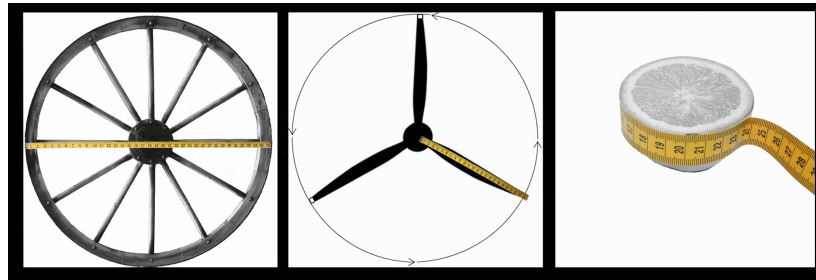


1. For each picture, what measurement(s) do you know?

2. Based on this information, what measurement(s) could you estimate for each picture?

# Activity Statement: Using $\pi$

In the previous activity, we looked at pictures of circular objects. One measurement for each object is listed in the table.

Your teacher will assign you an approximation for $\pi$ to use for this activity.

1. Complete the table.

| object | radius | diameter | circumference |
|---|---|---|---|
| wagon wheel | | 3 ft | |
| airplane propeller | 24 in | | |
| orange slice | | | 20 cm |

2. A bug was sitting on the tip of the propeller blade when it started to rotate. The bug held on for 5 rotations before flying away. How far did the bug travel before it flew off?

3. If the wagon travels 1,885 feet, about how many full rotations does the wheel make?

# Activity Statement: Around the Running Track

The field inside a running track is made up of a rectangle that is 84.39 m long and 73 m wide, with a half-circle at each end.
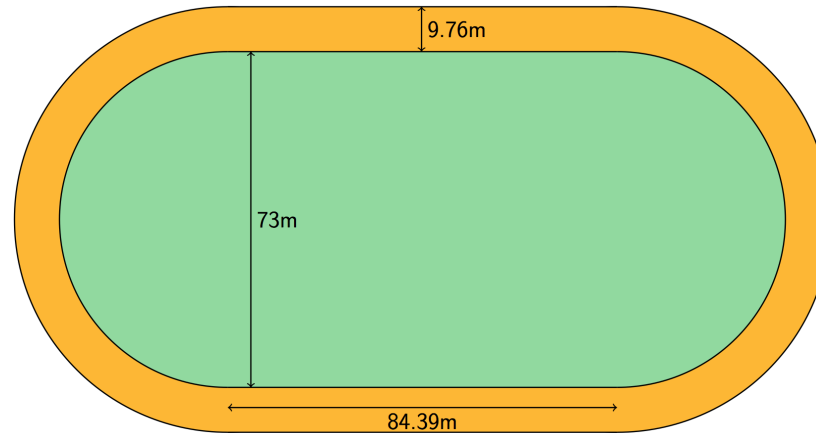


1. What is the distance around the inside of the track? Explain or show your reasoning.

2.  The running lanes are 9.76 m wide all the way around. What is the distance around the outside of the track? Explain or show your reasoning.